

**PROPOSED AMENDMENT OF THE WATER QUALITY CONTROL PLAN – LOS ANGELES REGION TO REVISE BACTERIA OBJECTIVES
FOR WATERS DESIGNATED FOR CONTACT RECREATION**

Responsiveness Summary

No.	Commentor	Date	Comment	Response
<i>Application of US EPA's 1986 Criteria Guidance and California Code of Regulations (CCR), Title 17, Section 7958 Bacteriological Standards</i>				
1	City of Los Angeles	9/17/01	The Bureau has concerns that the application of ocean bathing beach standards within [CCR, title 17] section 7958 has been erroneously applied to all waters designated REC-1 within the Los Angeles Region, including inland waters, enclosed bays and estuaries appears inappropriate.	<p>Staff disagrees. First, section 7958 states “the minimum protective bacteriological standards for waters adjacent to <i>public beaches and public water-contact sports areas</i> shall be as follows...” (emphasis added). Per the Basin Plan, water-contact sports areas are designated with the REC-1 (water contact recreation) beneficial use designation. In the Los Angeles Region, all coastal water bodies listed in the Basin Plan are designated as having ‘potential’, ‘intermittent’, or ‘existing’ REC-1 use, including beaches as well as offshore areas (see Tables 2-3 and 2-4).</p> <p>Second, staff proposes the adoption of the bacteriological standards in section 7958 only for marine waters (i.e., those waters listed in Tables 2-3 and 2-4, and other coastal waters that may not be listed in the Basin Plan). Staff is <i>not</i> proposing the same standards for inland waters.</p> <p>Third, staff disagrees that the bacteriological standards in section 7958 were intended to only be applied to beaches visited by more than 50,000 people annually or beaches adjacent to storm drains. It is true that section 7961 specifies minimum monitoring requirements for this sub-group; however, as stated earlier, the standards in section 7958 are meant to be applied to all “public beaches and public water-contact sports areas.”</p>
2	City of Los Angeles	9/17/01	The RWQCB included only bacteriological criteria specific to “designated beach areas” for all waters designated REC-1, and failed to include additional criteria	The U.S. EPA 1986 guidance does allow for the application of different “use” levels with correspondingly different single sample limits. The differences in the single sample limits result from applying different one-sided confidence levels, ranging from 75% to 95%, when calculating the limits. In lay terms, a 75% confidence level indicates

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			for other levels of use in full contact recreation waters as identified in the 1986 U.S. EPA guidance.	<p>that 75% of the measured values will fall below the specified single sample limit, while 25% will fall above the limit.</p> <p>Staff considered applying different use levels to some inland water bodies, but decided against this approach for the following reason. The different use levels suggested in the 1986 criteria guidance assume a decreased level of exposure to these water bodies among the <i>average</i> population. However, EPA's use levels do not take into account frequent exposure by vulnerable sub-groups of the population. Vulnerable sub-groups such as children use many of the region's inland water bodies. Therefore, staff feels that it is important to protect these water bodies at the same levels as "designated beach areas" per the U.S. EPA 1986 guidance.</p>
3	City of Los Angeles	9/17/01	Adopt the U.S. EPA 1986 marine bacteria criteria for enclosed bays and estuaries, which may more appropriately reflect the characteristics of those waters.	Staff proposes a combination of the U.S. EPA 1986 marine bacteria criteria and CCR, title 17, section 7958 standards for all marine waters. Marine waters include enclosed bays, estuaries, and other coastal water bodies listed in Tables 2-3 and 2-4 of the Basin Plan as well as other coastal waters within the region not individually listed in these tables.
4	County of Los Angeles, Department of Public Works	9/19/01	Standards should be based on intensity of use and applied to appropriate watercourses.	<p>The U.S. EPA 1986 guidance does allow for the application of different "use" levels with correspondingly different single sample limits. The differences in the single sample limits result from applying different one-sided confidence levels, ranging from 75% to 95%, when calculating the limits. In lay terms, a 75% confidence level indicates that 75% of the measured values will fall below the specified single sample limit, while 25% will fall above the limit.</p> <p>Staff considered applying different use levels to some inland water bodies, but decided against this approach for the following reason. The different use levels suggested in the 1986 criteria guidance assume a decreased level of exposure to these water bodies among the <i>average</i> population. However, EPA's use levels do not take into account frequent exposure by vulnerable sub-groups of the population. Vulnerable sub-groups such as children use many of the region's</p>

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<i>Specification of Water Quality Objectives</i>				
5	Heal the Bay, Inc.	9/18/01	The implementation provisions for the geometric mean objectives should require a minimum of five samples.	<p>The implementation language for the geometric mean objectives was taken directly from the U.S. EPA 1986 guidance document. This document recommends the following language: “[b]ased on a statistically sufficient number of samples (generally not less than 5 samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed...” (p. 16).</p> <p>Staff understands that more frequent sampling yields more accurate results when calculating the geometric mean. However, in many cases, samples are collected on a weekly basis, which falls short of meeting the criterion of five samples in 30 days. We have a significant amount of historical bacteriological data from many monitoring locations in the region. With these historical data, we are able to describe the variability in the data and, therefore, feel it is acceptable to calculate the geometric mean on potentially fewer than five samples. Staff discussions with technical staff at U.S. EPA support this conclusion.</p>
6	County of Los Angeles, Department of Public Works	9/19/01	Need better specification of objectives, including where the standards are applied, frequency and timing of sampling, applicable time periods, and number of exceedances allowed.	<p>Staff believes the level of specification proposed is appropriate. The following general specifications are inherently applied for all water quality objectives in the region. First, water quality objectives are applied based on the beneficial uses of the water body (and, in some cases, the state anti-degradation policy). The REC-1 beneficial use is the focus of this proposed amendment. All surface water bodies in the region are designated as having ‘potential’, ‘intermittent’, or ‘existing’ REC-1 use.</p> <p>Second, water quality standards are applied at the point of discharge unless there is an approved mixing zone per the mixing zone provision in the Basin Plan (p. 4-30). There are currently no approved mixing</p>

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				<p>zones for bacteriological water quality standards in the region. Third, unless a beneficial use is identified as seasonal or intermittent, the associated water quality objectives apply all the time. There are no seasonal beneficial uses designated for the region. Some beneficial uses in the region are designated as 'intermittent' because there are times during the year when the stream is dry.</p> <p>Fourth, the frequency of sampling is addressed for the proposed geometric mean objectives. The Regional Board in the monitoring requirements set forth in permits addresses other frequency and timing issues.</p> <p>Finally, the number of exceedances allowed is addressed through monitoring requirements in permits (for specific discharges) and through the 303(d) listing process (for specific water body segments or areas). Every two years the Regional Board prepares a regional water quality assessment and updates its 303(d) list of impaired waters as required by sections 305(b) and 303(d) of the federal Clean Water Act. The first step in this process is to prepare an assessment methodology, which specifies how impairment will be determined.</p>
<i>Consideration of Natural Conditions in Setting Water Quality Objectives</i>				
7	County of Los Angeles, Department of Public Works	9/19/01	Natural conditions often exceed the Basin Plan objectives by several orders of magnitude. This fact must be addressed in this amendment as well as future TMDLs.	<p>Staff recognizes that potential sources of the proposed bacterial indicators include human sewage as well as animal waste and vegetation. In light of this fact, staff is developing a proposed approach through the TMDL process to address situations where water bodies in largely undeveloped areas may have elevated bacterial densities.</p> <p>However, staff disagrees that this issue should in any way change the proposed amendment to the Basin Plan water quality objectives for bacteria. Staff reached this conclusion based on the U.S. EPA's Draft "Implementation Guidance for 'Ambient Water Quality Criteria for Bacteria – 1986' " (2000). In this guidance, the U.S. EPA states that "it is not appropriate for the application of bacteria water quality criteria to distinguish between human and non-human sources." The guidance</p>

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				<p>goes on to say “[u]ntil the time that a relationship between non-human sources of fecal contamination and human illness rates is established, EPA will continue to recommend the application of its water quality criteria for bacteria or other water quality criteria for bacteria based on scientifically defensible methods to <i>all</i> water bodies designated with primary contact recreation in order to ensure protection of human health...” (p. 24) (emphasis added).</p> <p>Furthermore, the findings of the Santa Monica Bay epidemiological study are supportive of this position. The Santa Monica Bay epidemiological study was unique in that it focused on increased health risks from urban runoff, rather than effluent from a sewage treatment plant. Therefore, the elevated bacteria densities observed during the study may have been from both human and non-human sources.</p>
<i>Impairment/Compliance Determination and Repeat/Confirmation Sampling</i>				
8	County Sanitation Districts of Los Angeles County (LACSD)	9/18/01	<p>The proposed objectives include single sample limits, while none of the current objectives for bacteria represent single sample limits. LACSD recommends that language be included requiring at least one confirmation sample before the result is determined to be an exceedance of the water quality objective.</p>	<p>Staff has proposed implementation language as part of the Basin Plan amendment that states “[I]f any of the single sample limits are exceeded, the Regional Board may require repeat sampling on a daily basis until the sample falls below the single sample limit or for 5 days, whichever is less, in order to determine the persistence of the exceedance.” This, in effect, addresses LACSD’s request for a confirmation sample.</p> <p>As for determining whether there is <i>impairment of water quality</i>, the number of exceedances that constitute impairment is determined through the 303(d) listing process. Every two years the Regional Board prepares a regional water quality assessment and updates its 303(d) list of impaired waters as required by sections 305(b) and 303(d) of the federal Clean Water Act. The first step in this process is to prepare an assessment methodology, which specifies how impairment will be determined. Typically, for conventional pollutants and bacteria, if more than 10% of samples exceed the “instantaneous” standard, the water body is considered impaired.</p>

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9	Heal the Bay, Inc.	9/18/01	In the event that any of the single sample limits are exceeded, the implementation provisions should allow for the Regional Board to require repeat sampling on a daily basis until the sample falls below the single sample limit. The maximum number of days of daily sampling should not be limited to five.	<p>Staff believes the implementation provision as proposed is appropriate. In many cases, bacteria water quality is monitored on a weekly basis (particularly for coastal beaches). Therefore, if a single sample objective is exceeded for five days, there will only be two days before the next weekly sample would be collected. Furthermore, if on one of the five days another single sample limit were exceeded, the five-day "clock" would re-start.</p> <p>Persistent exceedances of the single sample limits will be further addressed in the compliance monitoring programs developed for individual bacteria TMDLs. Specifically, the Regional Board is proposing sanitary surveys and/or municipal boundary monitoring where there is non-compliance with the TMDL numeric targets.</p>
10	County of Los Angeles, Department of Public Works	9/19/01	Compliance should not be assessed merely on the basis of a single sample.	<p>If there were a single sample exceedance, <i>compliance with permit limits</i> would likely be assessed based on a confirmation sample taken within 48 hours of the sample that exceeded the limit(s). This approach is accommodated by the proposed amendment, which gives the Regional Board the discretion to require repeat sampling on a daily basis if a sample exceeds any of the single sample objectives.</p> <p>The number of exceedances that constitute <i>impairment</i> is determined through the 303(d) listing process. Every two years the Regional Board prepares a regional water quality assessment and updates its 303(d) list of impaired waters as required by sections 305(b) and 303(d) of the federal Clean Water Act. The first step in this process is to prepare an assessment methodology, which specifies how impairment will be determined. Typically, for conventional pollutants and bacteria, if more than 10% of samples exceed the "instantaneous" standard, the water body is considered impaired.</p>
<i>Consideration of Costs</i>				
11	City of Los Angeles	9/17/01	RWQCB staff has not properly considered economic costs, the water quality conditions that could	Staff disagrees. While the proposed amendment does add new objectives for REC-1 waters, staff believes that there will not be any additional cost to achieving the new objectives over the cost of

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			reasonably be achieved, and other factors required to be considered under Water Code section 13241.	<p>achieving the current bacteria objectives. In most cases, the existing bacteria objectives are not being achieved. Therefore, we do not expect that there will be a change in the overall impairment status of water bodies as a result of the new objectives. This is because elevated densities of the individual bacterial indicators proposed often co-occur. Therefore, staff believes that costs of TMDL development and implementation, referred to by the commentor, will not increase over those already being incurred to meet existing bacteria objectives. However, staff will consider all cost estimates provided to the Regional Board.</p> <p>Staff acknowledges that the proposed amendment will result in an increase in the costs of monitoring. However, for marine waters, the California Ocean Plan (1997) already requires measurement of enterococcus density at all stations where measurement of total and fecal coliforms is required. Furthermore, CCR, title 17, section 7961 sets minimum monitoring requirements for a large sub-group of beaches, which include weekly monitoring of enterococcus density (along with total coliform and fecal coliform) from April 1 to October 31 each year.</p>
12	County of Los Angeles, Department of Public Works	9/19/01	The staff report does not adequately consider the costs of implementing the amendment. The amendment would alter the present standards by replacing the existing standards, which are based exclusively on averaging samples with revised averaging samples and with not-to-exceed single sample standards. This is not a mere statistical change; it greatly increases the likelihood that water quality objectives will be violated in a greater number of watercourses.	<p>See staff response to #11 above.</p> <p>The commentor is incorrect in stating that the existing standards are based exclusively on averaging samples. The existing Basin Plan standards include both a geometric mean objective for fecal coliform and an objective that may not be exceeded in more than 10% of samples in any 30-day period (see Staff Report, p. 3). While a single sample limit and 10% limit are statistically different, functionally they are in most cases the same. This is because unless there are more than 10 samples in 30 days, the 10% limit equates to a single sample.</p> <p>Furthermore, as stated earlier, the Regional Board has not, and does not plan to, base an impairment decision on a single sample. However, this is how most of the water quality objectives in the Basin Plan are stated. The typical rule-of-thumb that is used to determine</p>

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				impairment due to conventional pollutants and bacteria is more than 10% of samples exceeding the “instantaneous” or “single sample” standard.
<i>Timing of Amendment</i>				
13	LACSD	9/18/01	We are concerned that the adoption of the proposed objectives is preempting pending guidance to be issued by the State Water Resources Control Board and the EPA.	<p>Staff does not believe this is a concern for two reasons. First, the U.S. EPA has reaffirmed the scientific validity of the 1986 criteria through a review of relevant peer-reviewed studies conducted since EPA’s 1984 epidemiological studies (on which the 1986 guidance was based). Based on this review, the U.S. EPA has re-stated its commitment to the 1986 criteria.</p> <p>Specifically, EPA’s Draft “Implementation Guidance for ‘Ambient Water Quality Criteria for Bacteria – 1986’ “ (2000) states that “EPA believes its 1986 water quality criteria for bacteria continue to represent the best available science and serve as a defensible foundation for protecting public health in recreational waters.” EPA’s Office of Research and Development further concluded that “[t]he epidemiological studies conducted since 1984, which examined the relationships between water quality and swimming-associated health effects, have not established any new or unique principles that might significantly affect the current guidance EPA recommends for maintaining the microbiological safety of marine and freshwater bathing beaches. Many of the studies have in fact confirmed and validated the findings of the U.S. EPA studies. There would appear to be no good reason for modifying the Agency’s current guidance for recreational waters at this time.”</p> <p>In addition, the proposed objectives for marine water are expected to be fully consistent with the State Board’s proposed amendment to the California Ocean Plan. Staff has regularly consulted with State Board staff working on the proposed revisions to the California Ocean Plan to ensure that there will be no conflicts between the two plans.</p>